

WHAT IS CLAIMED IS:

1. A method of detecting a concealed object, comprising the steps of:
 - (a) transiently changing a temperature of at least part of a body at which the object is concealed;
 - (b) acquiring at least one infrared image of at least a first part of a surface of said body; and
 - (c) seeking the concealed object in said at least one infrared image.
2. The method of claim 1, wherein said body includes a person and wherein the object is concealed under a garment worn by said person.
3. The method of claim 2, further comprising the step of:
 - (d) pressing said garment against the object.
4. The method of claim 1, wherein said at least one infrared image is acquired in a wavelength band between about three microns and about five microns.
5. The method of claim 1, wherein said at least one infrared image is acquired in a wavelength band between about eight microns and about twelve microns.
6. The method of claim 1, wherein a plurality of said infrared images is acquired, the method further comprising the step of:
 - (d) processing said infrared images to provide a measure of a thermal diffusivity of said body, the concealed object then being sought according to said measure of said thermal diffusivity.

7. The method of claim 6, wherein said processing is selected from the group consisting of digital processing, optical processing and analog processing.

8. The method of claim 1, further comprising the step of:

(d) acquiring at least one infrared image of at least a second part of a surface of said body, from a different point of view than said at least one infrared image of said at least first part of said surface of said body, said concealed object then being sought both in said at least one infrared image of said at least first part of said surface of said body and in said at least one infrared image of said at least second part of said body.

9. The method of claim 1, wherein a plurality of said infrared images is acquired, the method further comprising the steps of:

(d) acquiring a corresponding plurality of reference images of said at least first part of said surface of said body; and

(e) processing said infrared images and said reference images to provide a measure of a thermal diffusivity of said body, the concealed object then being sought according to said measure of said thermal diffusivity.

10. The method of claim 9, wherein said processing is selected from the group consisting of digital processing, optical processing and analog processing.

11. The method of claim 9, wherein said reference images are acquired in a visible wavelength band.

12. The method of claim 9, wherein said reference images are acquired in a near-infrared wavelength band.
13. The method of claim 9, wherein said infrared images and said reference images are acquired substantially simultaneously.
14. The method of claim 1, further comprising the step of:
 - (d) if the concealed object is identified in said at least one infrared image: immobilizing said body.
15. The method of claim 1, wherein said transient change of said temperature is a transient increase of said temperature.
16. The method of claim 1, wherein said transient change of said temperature is a transient decrease of said temperature.
17. The method of claim 1, for industrial use.
18. The method of claim 1, for medical use.
19. A system for detecting a concealed object, comprising:
 - (a) a mechanism for transiently changing a temperature of at least part of a body at which the object is concealed; and
 - (b) a first camera for acquiring an infrared image of at least a first part of a surface of said body.

20. The system of claim 19, wherein said mechanism is operative to transiently increase said temperature.

21. The system of claim 19, wherein said mechanism is operative to transiently decrease said temperature.

22. The system of claim 19, wherein said first camera is operative to acquire said infrared images in a wavelength band between about three microns and about five microns.

23. The system of claim 19, wherein said first camera is operative to acquire said infrared image in a wavelength band between about eight microns and about twelve microns.

24. The system of claim 19, further comprising:

- (c) a second camera for acquiring an infrared image of at least a second part of a surface of said body from a different point of view than said infrared image acquired by said first camera.

25. The system of claim 19, wherein said first camera is operative to acquire a plurality of said infrared images.

26. The system of claim 25, further comprising:

- (c) a memory for storing said infrared images; and
- (d) a processor for processing said infrared images to identify the concealed object.

27. The system of claim 26, wherein said processor is selected from the group consisting of a digital processor, an optical processor and an analog processor.

28. The system of claim 26, further comprising:

(e) a second camera for acquiring a corresponding plurality of reference images of said at least first part of said surface of said body, said memory being operative to store said reference images, said processor being operative to process both said infrared images and said reference images to identify the concealed object.

29. The system of claim 28, wherein said second camera is operative to acquire said reference images in a visible wavelength band.

30. The system of claim 28, wherein said first and second cameras have a common field of view.

31. The system of claim 26, wherein said first camera is operative to acquire a corresponding plurality of reference images of said at least first part of said surface of said body, said memory being operative to store said reference images, said processor being operative to process both said infrared images and said reference images to identify the concealed object.

32. The system of claim 31, wherein said first camera is operative to acquire said reference images in a near-infrared wavelength band.

33. The system of claim 19, further comprising:

- (e) a mechanism for immobilizing said body.

34. A method of detecting a concealed object, comprising the steps of:

- (a) acquiring at least one infrared image of at least a first part of a surface of a body at which the object is concealed while a temperature of at least part of said body fluctuates; and
- (b) seeking the concealed object in said at least one infrared image.

35. The method of claim 34, wherein said body includes a person and wherein the object is concealed under a garment worn by said person.

36. The method of claim 35, further comprising the step of:

- (c) pressing said garment against the object.

37. The method of claim 34, wherein said at least one infrared image is acquired in a wavelength band between about three microns and about five microns.

38. The method of claim 34, wherein said at least one infrared image is acquired in a wavelength band between about eight microns and about twelve microns.

39. The method of claim 34, further comprising the step of:

- (c) acquiring at least one infrared image of at least a second part of a surface of said body, from a different point of view than said at least one infrared image of said at least first part of said surface of said body, said concealed object then being sought both in said at least one infrared image of said at least first part of said

surface of said body and in said at least one infrared image of said at least second part of said body.

40. The method of claim 34, wherein a plurality of said infrared images is acquired, the method further comprising the step of:

- (c) processing said infrared images to provide a measure of a thermal diffusivity of said body, the concealed object then being sought according to said measure of said thermal diffusivity.

41. The method of claim 40, wherein said processing is selected from the group consisting of digital processing, optical processing and analog processing.

42. The method of claim 34, wherein a plurality of said infrared images is acquired, the method further comprising the steps of:

- (c) acquiring a corresponding plurality of reference images of said at least first part of said surface of said body; and
- (d) processing said infrared images and said reference images to provide a measure of a thermal diffusivity of said body, the concealed object then being sought according to said measure of said thermal diffusivity.

43. The method of claim 42, wherein said processing is selected from the group consisting of digital processing, optical processing and analog processing.

44. The method of claim 42, wherein said reference images are acquired in a visible wavelength band.

45. The method of claim 42, wherein said reference images are acquired in a near-infrared wavelength band.

46. The method of claim 42, wherein said infrared images and said reference images are acquired substantially simultaneously.

47. The method of claim 34, further comprising the step of:

(c) if the concealed object is identified in said at least one infrared image: immobilizing said body.

48. The method of claim 34, for industrial use.

49. The method of claim 34, for medical use.

50. A system for detecting a concealed object, comprising:

(a) a first camera for acquiring at least one infrared image of at least a first part of a surface of a body at which the object is concealed;

(b) a memory for storing said at least one infrared image; and

(c) a processor for processing said at least one infrared image to identify the concealed object.

51. The system of claim 50, wherein said processor is selected from the group consisting of a digital processor, an optical processor and an analog processor.

52. The system of claim 50, wherein said first camera is operative to acquire said at least one infrared image in a wavelength band between about three microns and about five microns.

53. The system of claim 50, wherein said first camera is operative to acquire said at least one infrared image in a wavelength band between about eight microns and about twelve microns.

54. The system of claim 50, further comprising:

- (d) a second camera for acquiring an infrared image of at least a second part of a surface of said body from a different point of view than said infrared image acquired by said first camera.

55. The system of claim 50, wherein said first camera is operative to acquire a plurality of said infrared images.

56. The system of claim 55, wherein said processor is operative to process said plurality of said infrared images to provide a measure of a thermal diffusivity of said body, the concealed object then being identified according to said measure of said thermal diffusivity.

57. The system of claim 55, further comprising:

- (d) a second camera for acquiring a corresponding plurality of reference images of said at least first part of said surface of said body, said memory being operative to store said reference images, said processor being operative to process both said infrared images and said reference images to identify the concealed object.

58. The system of claim 57, wherein said second camera is operative to acquire said reference images in a visible wavelength band.

59. The system of claim 57 wherein said first and second cameras have a common field of view.

60. The system of claim 55, wherein said first camera is operative to acquire a corresponding plurality of reference images of said at least first part of said surface of said body, said memory being operative to store said reference images, said processor being operative to process both said infrared images and said reference images to identify the concealed object.

61. The system of claim 60, wherein said first camera is operative to acquire said reference images in a near-infrared wavelength band.

62. The system of claim 50, further comprising:

(d) a mechanism for immobilizing said body.